

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JACOBSSON et al.

Attorney Docket No.: P69855US0

Serial No.: 10/500,148

Group Art Unit: 3721

Filed: April 4, 2005

Examiner: Lindsay M. LOW

For: COMPRESSED AIR PERCUSSIVE MECHANISM FOR A DOWN HOLE
HAMMER AND DOWN HOLE HAMMER

PROPOSED AMENDMENT

MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Office Action of September 10, 2009 (Paper No. 20090909),
please amend the above-captioned application as follows:

Amendments
added to
claim 1 and 9.

IN THE CLAIMS:

Please amend claims 1, 2 and 9 as follows:

Claim 1 (Currently Amended): Pressure-air driven percussion device for a down-the-hole drill, the pressure-air driven percussion device comprising

a hammer-piston axially reciprocally movable in a hammer-piston chamber through a driving device, said hammer-piston in operation acting with a hammer-end against an upper end of a drill bit positioned inside a chuck,

an sealed air cushion for reducing percussive power, said sealed air cushion being arranged at the hammer-end of the hammer-piston in positions where the drill bit has been moved past a predetermined distance in a percussion direction,

the drill bit being sealingly slidably supported in a drill bit bushing, and

the hammer-piston being movable inside the drill bit bushing and the hammer-end of the hammer-piston sealingly cooperating with the drill bit bushing in said positions to form said sealed air-cushion,

said sealed air-cushion forming a sealed air volume defined vertically between an upper end of the drill bit and the hammer-end of the hammer-piston located inside the drill bit bushing, and laterally by the drill bit bushing so that strikes performed by the hammer-piston against the upper end of the drill bit are cushioned by the sealed

2, with an outer-most diameter of the hammer-end of the hp being.

air-cushion and the drill bit is exposed to percussive energy peaks, prior to contact of the hammer-piston against the upper end of the drill bit.

Claim 2 (Currently Amended): Percussion device according to claim 1, wherein ~~an~~ the upper end ~~portion~~ of the drill bit is sealingly, slidingly supported in the drill bit bushing.

Claim 3 (Cancelled).

Claim 4 (Previously Presented): Percussion device according to claim 1, wherein the drill bit bushing is arranged to be supported by a housing of the down-the-hole drill.

Claim 5 (Previously Presented): Percussion device according to claim 1, wherein the hammer-piston chamber is formed by a housing of the down-the-hole drill.

Claim 6 (Previously Presented): Percussion device according to claim 1, wherein the driving device includes a leakage passage for pressure-air through which a flushing position is established, and the pressure-air is allowed to leak past the driving device in advanced positions in the percussion direction of the hammer-piston.

Claim 7 (Previously Presented): Percussion device according to claim 1, wherein the hammer-piston is provided with a central axial channel which continues in the drill bit over a foot valve, which is fastened in the drill bit and seals against the hammer-piston.

Claim 8 (Previously Presented): Percussion device according to claim 7, wherein the air-cushion is limited by an outside surface of the foot valve.

Claim 9 (Currently Amended): Down-the-hole drill comprising

a percussion device with a hammer-piston axially reciprocally movable in a hammer-piston chamber through a driving device, said hammer-piston in operation acting with a hammer-end against an upper end of a drill bit positioned inside a chuck,

an air cushion for reducing percussive power arranged at the hammer-end of the hammer-piston in positions where the drill bit has been moved past a predetermined distance in a percussion direction,

the drill bit being sealingly slidingly supported in a drill bit bushing, and

the hammer-piston being movable inside the drill bit bushing and the hammer-end of the hammer-piston sealingly cooperating with the drill bit bushing in said positions to form said air-cushion,

said air-cushion being arranged in a sealed air volume defined vertically between an upper end of the drill bit and the hammer-end of the hammer-piston, and laterally by the drill bit bushing so that strikes performed by the hammer-piston against the upper end of the drill bit are cushioned by the air-cushion and the drill bit is exposed to percussive energy peaks, prior to contact of the hammer-piston against the upper end of the drill bit.

with an outer-most diameter
of the hammer-end of the
hammer-piston being located
inside the drill bit bushing,